

## ABSTRACT

Among the embodiments of the present invention is an apparatus that includes a transistor, a servo device, and a current source. The servo device is operable to provide a  
5 common base mode of operation of the transistor by maintaining an approximately constant voltage level at the transistor base. The current source is operable to provide a bias current to the transistor. A first device provides an input signal to an electrical node positioned between the emitter of the transistor and the current source. A second device receives an output signal from the collector of the transistor.